Foundation

GCSE

Mathematics - Paper 1

J560/01: Paper 1 (Foundation tier)

General Certificate of Secondary Education

Mark Scheme for June 2024

OCR (Oxford Cambridge and RSA) is a leading UK awarding body, providing a wide range of qualifications to meet the needs of candidates of all ages and abilities. OCR qualifications include AS/A Levels, Diplomas, GCSEs, Cambridge Nationals, Cambridge Technicals, Functional Skills, Key Skills, Entry Level qualifications, NVQs and vocational qualifications in areas such as IT, business, languages, teaching/training, administration and secretarial skills.

It is also responsible for developing new specifications to meet national requirements and the needs of students and teachers. OCR is a not-for-profit organisation; any surplus made is invested back into the establishment to help towards the development of qualifications and support, which keep pace with the changing needs of today's society.

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

MARKING INSTRUCTIONS

1. Make sure that you have accessed and completed the relevant training packages for on-screen marking: *RM Assessor Online Training*; *OCR Essential Guide to Marking*.

2. Make sure that you have read and understood the mark scheme and the question paper for this unit. These are available in RM Assessor.

3. Log-in to RM Assessor then mark and annotate the **required number** of practice responses ("scripts") and the **required number** of standardisation responses.

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. The schedule of dates is very important. It is essential that you meet the RM Assessor 50% and 100% deadlines. If you experience problems, you must contact your Team Leader (Supervisor) without delay.

4. If you are in any doubt about applying the mark scheme, consult your Team Leader via the RM Assessor messaging system.

5. Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners should give candidates the benefit of the doubt and mark the crossed out response where legible.

6. When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

7. On each blank page the annotation **BP** must be inserted to confirm that the page has been checked. For additional objects (if present), a tick must be inserted on each page to confirm that it has been checked.

8. Award No Response (NR) if:
   - there is nothing written in the answer space

   Award Zero '0' if:
   - anything is written in the answer space and is not worthy of credit (this includes text and symbols).

   Team Leaders must confirm the correct use of the NR button with their markers before live marking commences and should check this when reviewing scripts.

   Note: Award 0 marks for an attempt that earns no credit (including copying out the question).

9. The RM Assessor **comments box** is used by the Principal Examiner or your Team Leader to explain the marking of the practice responses. Please refer to these comments when checking your practice responses. **Do not use the comments box for any other reason.**

   If you have any questions or comments for your Team Leader, use the RM Assessor messaging system.

10. Assistant Examiners should send a brief report on the performance of candidates to their Team Leader (Supervisor) by the end of the marking period. Please follow the direction of your Team Leader about which questions you should report on and how to submit your report. Your report should contain notes on particular strengths displayed as well as common errors or weaknesses.

11. Annotations available in RM Assessor. These **must** be used whenever appropriate during your marking.

Annotation	Meaning
	Correct
	Incorrect
BOD	Benefit of doubt
FT	Follow through
ISW	Ignore subsequent working (after correct answer obtained), provided method has been completed
M0	Method mark awarded 0
M1	Method mark awarded 1
M2	Method mark awarded 2
A1	Accuracy mark awarded 1
B1	Independent mark awarded 1

Annotation	Meaning
B2	Independent mark awarded 2
MR	Misread
SC	Special case
^	Omission sign
BP	Blank page
SEEN	Seen

For a response awarded zero (or full) marks a single appropriate annotation (cross, tick, M0 or ^) is sufficient, but not required.
For responses that are not awarded either 0 or full marks, you must make it clear how you have arrived at the mark you have awarded and all responses must have enough annotation for a reviewer to decide if the mark awarded is correct without having to mark it independently.

It is vital that you annotate standardisation scripts fully to show how the marks have been awarded.

Subject-Specific Marking Instructions

12. **M** marks are for using a correct method and are not lost for purely numerical errors.
A marks are for an accurate answer and depend on preceding **M** (method) marks. Therefore **M0 A1** cannot be awarded.
B marks are independent of **M** (method) marks and are for a correct final answer, a partially correct answer, or a correct intermediate stage.
SC marks are for special cases that are worthy of some credit.

13. The following abbreviations are commonly found in GCSE Mathematics mark schemes.

- **figs 237**, for example, means any answer with only these digits. You should ignore leading or trailing zeros and any decimal point e.g. 237000, 2.37, 2.370, 0.00237 would be acceptable but 23070 or 2374 would not.
- **isw** means **ignore subsequent working** after correct answer obtained and applies as a default.
- **nfww** means **not from wrong working**.
- **oe** means **or equivalent**.
- **rot** means **rounded or truncated**.
- **soi** means **seen or implied**.
- **dep** means that the marks are **dependent** on the marks indicated. You must check that the candidate has met all the criteria specified for the mark to be awarded.
- **with correct working** means that full marks **must not** be awarded without some working. The required minimum amount of working will be defined in the guidance column and **SC** marks given for unsupported answers.

14. Anything in the mark scheme which is in square brackets […] is not required for the mark to be earned, but if present it must be correct.

15. Unless the command word requires that working is shown and the working required is stated in the mark scheme, then if the correct answer is clearly given and is not from wrong working **full marks** should be awarded.

    Do not award the marks if the answer was obtained from an incorrect method, i.e. incorrect working is seen and the correct answer clearly follows from it.

16. Where follow through (**FT**) is indicated in the mark scheme, marks can be awarded where the candidate's work follows correctly from a previous answer whether or not it was correct. For questions with FT available you must ensure that you refer back to the relevant previous answer. You may find it easier to mark these questions candidate by candidate rather than question by question.

Figures or expressions that are being followed through are sometimes encompassed by single quotation marks after the word *their* for clarity, e.g. FT 180 × (*their* '37' + 16), or FT 300 – √(*their* '52 + 72'). Answers to part questions which are being followed through are indicated by e.g. FT 3 × *their* (a).

17. In questions **with no final answer line**, make no deductions for wrong work after an acceptable answer (i.e. **isw**) unless the mark scheme says otherwise, indicated by the instruction 'mark final answer'.

18. In questions **with a final answer line and incorrect answer given**:

(i) If the correct answer is seen in the body of working and the answer given on the answer line is a clear transcription error allow full marks unless the mark scheme says 'mark final answer'. Place the annotation ✓ next to the correct answer.

(ii) If the correct answer is seen in the body of working but the answer line is blank, allow full marks. Place the annotation ✓ next to the correct answer.

(iii) If the correct answer is seen in the body of working but a completely different answer is seen on the answer line, then accuracy marks for the answer are lost. Method marks could still be awarded if there is no other method leading to the incorrect answer. Use the **M0**, **M1**, **M2** annotations as appropriate and place the annotation ✗ next to the wrong answer.

19. In questions **with a final answer line**:

(i) If one answer is provided on the answer line, mark the method that leads to that answer. A correct step, value or statement that is not part of the method that leads to the given answer should be awarded **M0** and/or **B0**.

(ii) If more than one answer is provided on the answer line and there is a single method provided, award method marks only.

(iii) If more than one answer is provided on the answer line and there is more than one method provided, award marks for the poorer response unless the candidate has clearly indicated which method is to be marked.

20. In questions with **no final answer line**:

(i) If a single response is provided, mark as usual.

(ii) If more than one response is provided, award marks for the poorer response unless the candidate has clearly indicated which response is to be marked.

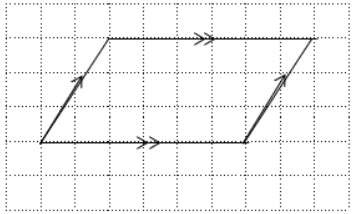
21. When the data of a question is consistently misread in such a way as not to alter the nature or difficulty of the question, please follow the candidate's work and allow follow through for **A** and **B** marks. Deduct 1 mark from any **A** or **B** marks earned and record this by using the **MR** annotation. **M** marks are not deducted for misreads. If a candidate corrects the misread in a later part, do not continue to follow through, but award **A** and **B** marks for the correct answer only.

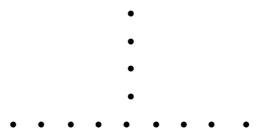
22. Unless the question asks for an answer to a specific degree of accuracy, always mark at the greatest number of significant figures even if this is rounded or truncated on the answer line. For example, an answer in the mark scheme is 15.75, which is seen in the working. The candidate then rounds or truncates this to 15.8, 15 or 16 on the answer line. Allow full marks for the 15.75.

23. Ranges of answers given in the mark scheme are always inclusive.

24. For methods not provided for in the mark scheme give as far as possible equivalent marks for equivalent work. If in doubt, consult your Team Leader.

25. If in any case the mark scheme operates with considerable unfairness consult your Team Leader.

Question			Answer	Marks	Part marks and guidance	
1	(a)		Any even number	1		In all parts if more than one answer all must be correct
	(b)		A multiple of 7	1		Accept 7
	(c)		27, 64, 125 or 216	1		Do not accept e.g 6^3 but condone $6^3 = 216$
	(d)		2, 3, 5 or 7	1		
2	(a)		6	1		
	(b)		18 or -3	2	**M1** for 3 + 15 or 12 – 15	
3	(a)		133	1		Allow 131 to 135
	(b)		2 of the angles are equal oe	1		Must refer to angles not sides, statements must not be contradicted
	(c)	(i)		1	Correct parallelogram drawn	Accept reasonable freehand, tolerance ± 2mm by eye
				1 dep	**dep** on parallelogram drawn Accept other, complete, standard notations that indicate a parallelogram eg two pairs of opposite sides have equal length or two pairs of opposite angles are equal or any combination of these properties that define a parallelogram	Mark intent Arrows must be correct single/double and pointing in correct direction

Question			Answer	Marks	Part marks and guidance	
		(ii)	18 nfww	**2**	**FT** *their* parallelogram **M1** for *their* length × *their* perpendicular height oe	e.g. 6 + 3 + 6 + 3 = 18 scores 0 **M1** and **2** marks are dependent on a parallelogram being drawn in (i) Must be in cm^2 If not 6 and 3 *their* dimensions need to be verifiable eg shown on the diagram eg **M0** for $\sqrt{13}$ or 3.6… etc as *their* perpendicular height oe includes two triangles + the 4 × 3 rectangle or the 8 × 3 rectangle – two triangles Need to be certain that 3 is slant height to withhold the marks
4	**(a)**			**1**		May be drawn at the end of the sequence Ignore extras
	(b)		31 Add 3 to each pattern 3*n* + 1 or 3 × 10 + 1 or 10 + 21	**1** **1**		Answer must not come from a drawing See appendix
5			654	**2**	**M1** for 81 × 8 implied by 648	Condone flow diagrams $\frac{x-6}{8} = 81$ is not enough

Question			Answer	Marks	Part marks and guidance	
6	(a)		Activities in either order with no repeats: B and E B and R D and E D and R E and R	2	**M1** for at least 3 new correct combinations, ignoring repeats or incorrect combinations	Accept initial, word or abbreviation if clear
	(b)		$\frac{3}{6}$ oe	1FT	Strict **FT** of *their* list including the given combination	isw incorrect cancelling or changing to decimals **FT** allow repeats
7	(a)	(i)	($^-$2, $^-$3)	1		
		(ii)	Plot at (4, $^-$1).	1		
	(b)		$x = ^-2$	1		
8	(a)		36	1		
	(b)		1.5	3	**M1** for $30 = 4(c + 6)$ **M1FT** for $7.5 = c + 6$ or for $30 = 4c + 24$ OR Without formal algebra: **M1** for $30 \div 4$ implied by 7.5 **M1** for (*their* 7.5) – 6	First correct step only apply **FT** to an equivalent **M1** expression Accept any letter for *c* *c* must not be blank

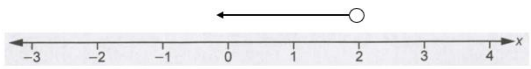
Question			Answer	Marks	Part marks and guidance	
9			$\frac{4}{7}$ 15	1 2	**B1** for 5 or 35 or **M1** for 3 : 4 = *n* : 20 oe or for 20 ÷ 4 If **0 or 1** scored instead award **SC2** for correct values in incorrect place	May be embedded within a longer valid calculation eg 20 ÷ 4 × 3 or 20 ÷ 4 × 7 [– 20]
10	(a)		2 : 5	1		If colon not used do not accept 2.5 Accept 1 : 2.5 or 0.4 : 1
	(b)		24	3	**M2** for $\frac{6 \times 1000 \times 100}{25000}$ oe or **M1** for 6 × 1000 × 100 may be implied by 600 000 or for $\frac{\text{figs } 6}{\text{figs } 25}$ may be implied by answer figs 24	Condone (figs 6 or figs 15) × 1000 × 100

11			4 with correct working	**5**	**B4** for answer 3.15 or $\frac{63}{20}$ $3\frac{3}{20}$ or 6.6[6..] or 6.7 with correct working OR **M3** for $\frac{600 \times 0.3 \times 7}{400}$ oe or for 400 ÷ 180 × 3 or for 1260 with both 4 × 400 and 3 ×400 OR **M2** for 600 × 0.3 × 7 or for $\frac{600 \times 0.3}{400}$ or for 400 ÷ 180 or for 400 – 180 – 180 or for both 4 × 400 and 3 × 400 OR **M1** for 600 × 0.3 or for 0.3 × 7 or for $\frac{600}{400}$ **0** or **1** scored, instead award **SC2** for answer 4 with no or insufficient working If **0** scored, instead award **SC1** for answer 3.15 with no or insufficient working	"Correct working" requires evidence of at least **M2** Condone for **B4** answer of 3 following 3.15 **M3** and **M2** may be seen in stages may be implied by 1260, 1600 and 1200 may be implied by 1260 or 0.45 may be implied by 2.2(22…) may be implied by 1600 and 1200 may be implied by 180 may be implied by 2.1 may be implied by 1.5

Question			Answer	Marks	Part marks and guidance	
12			110.2[0]	**3**	**M2** for 1.16 × 95 oe or **M1** for [0].16 × 95 oe	May be done in stages May be implied by 15.2 Do not accept 95 x 116% or 95 x 16% See sheet in appendix for non-calculator methods
13			2.2	**3**	**M1** for [0 × 11], 1 × 8, 2 × 10, 3 × 8, 4 × 7, 5 × 6 **M1** for *their* ∑(books × freq) ÷ 50	May be implied by [0,] 8, 20, 24, 28, 30 or 110 For **M1** allow one error or omission in calculation or answers Must be a sum of products
14			525	**4**	**M3** for $\frac{7 \times 60 \times 15}{12}$ oe OR **M2** for $\frac{7 \times 60}{12}$ oe may be implied by 35 or for $\frac{60 \times 15}{12}$ oe may be implied by 75 OR **M1** for $\frac{15}{12}$ may be implied by 1.25 or for $\frac{12}{15}$ may be implied by 0.8 or for 7 × 60 may be implied by 420 or for $\frac{60}{12}$ may be implied by 5	eg **M3** for 420 × 1.25 or 420 ÷ 0.8 or 7 × 75 eg **M2** for 7 × 5 or 60 × 1.25 **M3** and **M2** may be seen in stages

Question			Answer	Marks	Part marks and guidance	
15			83.9… or 84 or $83\frac{13}{14}$	**2**	**M1** for $\frac{47\,000}{560}$ or **B1** for answer 83 with no working	
16			75 with correct working	**5**	**M1** for $\frac{9}{10}$ × 400 oe may be implied by 360 or 90% AND **B2** for 300 or **M2** for $\frac{their360}{6}$ × 5 oe or $\frac{90}{6}$ × 5 OR **B1** for 60 or 15% or **M1** for $\frac{their360}{6}$ or $\frac{90}{6}$ AND **M1** for $\frac{their300}{400}$ [× 100] oe If **0** or **1** scored, instead award **SC2** for answer 75 with no or insufficient working	"Correct working" requires evidence of at least **M1** AND **M1** 100% = 400, 1/10 = 10% = 40 400 – 40 = 360 Award **B2** for 60 : 300 or 300 : 60 *Their* 360 must come from use of 400 *Their* 300 must come from an attempt at a correct method

Question			Answer	Marks	Part marks and guidance	
17			Triangle drawn with vertices at (2, 2), (4, 2), (4, 3)	3		Condone freehand, mark intent Red overlay scores 3
					B2 for scale factor $\frac{1}{2}$ but wrong centre or for correct centre but wrong scale factor or for 3 correct vertices but no triangle drawn or **B1** for 2 correct vertices or a proportional enlargement with incorrect centre	**B2** includes enlargement in correct proportions with horizontal side touching both the green and red lines For **B1** and **B2** sf ≠ 1 Similar shape with correct orientation

Question			Answer	Marks	Part marks and guidance	
18			$x < 2$	4	**B2** for $x < 2$ or **M1** for $7x < 11 + 3$ or better	Solution to inequality Allow **M1** for this expression with other inequality symbols or equals sign or [x =] 2 as solution (can be implied by mark/circle on the diagram) or trials leading to selection of 2 or final correct trial using 2 Displaying the solution:
			AND  		AND **B2FT** for *their* inequality correctly shown or **B1FT** for correctly placed circle for *their* $x < 2$ but with hollow circle and incorrect arrow or for filled circle with correct arrow	Display must show an inequality that fits on the number line for **FT** Mark to candidate's advantage either $x < 2$ or *their* inequality Accept an arrow of any length or a line reaching –3 If no solution to inequality seen: Hollow circle at 2 arrow to left **M1B2** Hollow circle at 2 arrow to right **M1B1** Solid circle at 2 arrow to left **M1B1** Solid circle at 2 arrow to right **M1B0** Mark at 2 no line or arrow **M1B0** Circle and/or arrow at other than 2 **M0B0**

Question			Answer	Marks	Part marks and guidance	
19			46.34	3	**B2** for 46.33[7…] or **B1** for 99 493[.836…] or 144 266[.0625] If **0** scored **SC1** for *their* answer to more than 4 figures correctly rounded to 4 s.f.	for **B1** accept these numbers rot to at least integers
20			$\frac{1}{2} \times 18 \times 6.4$ $\frac{9+15}{2} \times 4.8$ oe [both answers] 57.6 or $\frac{288}{5}$ oe	**M1** **M1** **A1**	**A1 dep** on **M1 M1**	Allow equivalents for both **M1**s but it must be full and correct working and allow any correct method e.g. **M1** for $\frac{9+15}{2} \times 4.8 = 57.6$ **M1** for 57.6 ÷ 9 = 6.4 = height **A1** for 6.4 Condone 24 for 9 + 15 and 9 for $\frac{1}{2} \times 18$ e.g. $\frac{115.2}{2}$
21	(a)	(i)	(360 – 52) ÷ (1 + 2 + 4) or better [= 44]	2	**M1** for 360 – 52 or 308 or *their*(360 – 52) ÷ (1 + 2 + 4) Alternative method 1 : **M2** for 7*x* = 360 – 52 or 7*x* = 308 then *x* = 44 or **M1** for *x*, 2*x* and 4*x* or 360 – 52 or 308 Alternative method 2 : **M2** for 52 + 44 + 2 × 44 + 4 × 44 = 360 oe or **M1** for 52 + 44 + 2 × 44 + 4 × 44 oe	better includes 308 ÷ 7 Mark the work in the answer space and if blank, mark any work round the diagram Allow any letter For **M2** and **M1** accept 88 for 2 x 44 and 176 for 88 x 2

Question			Answer	Marks	Part marks and guidance	
	(a)	**(ii)**	Correct labelled pie chart with ruled lines and sector angles 44, 88 and 176	**3**	**B2** for two additional correct sectors within tolerance or a correct unlabelled/incorrectly labelled pie chart with ruled lines or correct labelled pie chart with unruled lines or **B1** for one correct sector within tolerance, ignore label	Use online protractor and apply an angle tolerance of ± 2°. For **3** marks we need only four sectors and condone one sector unlabelled. Labels must be letters not angles
	(b)		270	**2**	**M1** for any correct method e.g. $\frac{39}{52} \times 360$ oe or 39 + $\frac{176}{\frac{52}{39}} + \frac{88}{\frac{52}{39}} + \frac{44}{\frac{52}{39}}$	e.g. $\frac{360}{\frac{52}{39}}$ or $\frac{39}{52 \div 360}$ condone $\frac{52}{39}$ = 1.3
	(c)	**(i)**	Accept any correct advantage e.g. Information is immediately displayed as part of a whole	**1**		See appendix and mark best response as long as it is not contradictory or has an incorrect statement
	(c)	**(ii)**	Accept any correct disadvantage e.g. you cannot read the exact frequencies from it	**1**		See appendix and mark best response as long as it is not contradictory or has an incorrect statement
22			Any unambiguous indication of correct pack (5 kg) with three accurate comparable figures	**3**	Allow any correct comparison e.g.(converting all to 1 kg) **B2** for three accurate comparable figures or **B1** for two accurate comparable figures OR **M1** for one correct appropriate calculation e.g. 7.70 ÷ 0.7 oe or 32.40 ÷ 3 oe	See appendix for other calculations and values Mark *their* figures at the most accurate

Question			Answer	Marks	Part marks and guidance	
23			Accept any correctly matched pair where car > garage matched pair of values or non-overlapping ranges and the values quoted are 4.5 ≤ garage < 4.55 4.5 < car < 4.55	**3**	**B1** for a value in 4.5 ≤ garage < 5 **B1** for a value in 4.5 < car < 4.55	Ranges must not overlap for 3 marks Values must be clearly associated with garage (or 5) or car (or 4.5) as appropriate. For **B1** if choice of values given all must be in range, unless acceptable value(s) indicated
24			146 with correct working	**5**	**M2** for $3x + 36 = 180$ oe or **M1** for $(x – 14) + (2x + 50) = 180$ oe AND **A1** for [x =] 48 **M1** for 2 × *their* x + 50 If **0 or 1** scored, instead award **SC2** for 146 with no or insufficient working If **0** scored, instead award **SC1** for [x =] 48 or $y = 2x + 50$	"Correct working" requires evidence of at least **M2 or M1M1** <u>Trials:</u> Correct answer from trials scores 5 Allow correct substitution into $(x – 14) + (2x + 50)$ to imply **M1** if 180 also stated Dep on at least **M1** *their* x < 65 **SC** marks may be seen on diagram

Question			Answer	Marks	Part marks and guidance	
25			17	**4**	**M3** for $\sqrt{(\text{their } 8)^2 + 15^2}$ or $\sqrt{289}$ or **M2** for (*their* 8)^2 + 15^2 or **B1** for 8	*their* 8 must be from an attempt at 20 - 12 8 must be their missing base length **B1** for 8 may be implied by use of 8^2 in a Pythagoras statement eg $15^2 = 8^2 + x^2$
26			[*x* =] 7 [*y*=] 4 final answer	**3**	**M1** for correct method to eliminate one variable **A1** for *x* = 7 **A1** for *y* = 4 If 0 scored **SC1** for a pair of values that satisfies one of the original equations	Allow one error Or correct substitution of one equation into the other and getting to *kx* = *n* Correct answer from trials scores **3**
27			[2^{-2} =] [0].25 [2×10^{-2} =] [0].02 2×10^{-2} , 0.2 , 2^{-2}	**M2** **B1**	**M1** for each accept answer in alternate form e.g fractions or decimals	Alternative methods: eg **M2** for finding $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{50}$ or 20[%], 25[%], 2[%] or other comparable forms or **M1** for two of these

Appendix

Exemplar responses for Q3b

Response	Mark
Two angles are identical and one is different.	1
Only two of the angles are the same so it cannot be equilateral.	1
Because two of the angles being the same means it is equal lines.	1
Two angles of an isosceles have to be the same.	1
27˚ and 27˚ are equal meaning it has two equal sides.	1
Only 2 numbers are the same and it's not all equal	1 bod
Because others don’t have same two angles	1 bod
Because others don’t have two angles the same/2 same angles	1 bod
Base angles in an isosceles triangle are always equal.	1 bod
Because isosceles triangles have equal sides and they are 27˚.	0
Because 2 sides of the triangle are the same which is 27˚ and the last side is different.	0
One angle is bigger than the others	0
Because they’re both 27 degree angles'	0
2 sides are the same	0
Both of isosceles have the same number	0

Exemplar responses for Q4(b)

Response	Mark
P[attern] 4 = 13, p 5 = 16, p 6 = 19, p7 = 22, p8 = 25, p9 = 28, p10 = 31	1 1
Goes up by 3 each time so 7 x 3 = 21 = 31 (10 was amount of dots on last diagram)	1 1
31. Horizontal dots increase by 2 each time and vertical dots increase by 1 each time	1 1
31 Its 10 up, 10 to the left, 10 to the right and 1 in the middle	1 1
31 patterns go up 3	1 1
31. I added 3 six times.	1 0
31 It doesn't give any numbers	1 0
31 by using the calculator	1 0
31. I added 3	1 0
28 dots in pattern 10. I counted the dots in pattern 4 and added 3 six times.	0 1
30. All patterns gain 3 as they get bigger.	0 1

Exemplar responses for Q21(c)(i)

Response	Mark
Information is immediately displayed as part of a whole	**1**
You can see the proportions easily	**1**
It shows proportions	**1**
Visual representation of proportions	**1**
Pie chart visually shows more than half the students voted G	**1**
It shows as a percentage of a whole	**1(BOD)**
Easier to tell the percentage of people who chose a design	**1(BOD)**
Easier to see percentage	**1(BOD)**
Easier to compare/ see results/ can see which one is most popular (or least popular)	**0**
Shows difference based on size of each part	**0**
Can easily compare size of sectors	**0**
Clear to see	**0**
Easier to read / understand	**0**
You can see the amounts compared to other amounts / can see biggest and smallest with a glance	**0**
It gives a better view on results	**0**
You can work out the percentage better	**0**
They give you a percentage whilst a bar chart doesn't	**0**
It's more accurate	**0**
Identify results quicker	**0**
Shows largest one without giving numbers	**0**

Exemplar responses for Q21(c)(ii)

Response	Mark
you cannot read the [exact] frequencies from it	**1**
It does not show frequencies/ the amount of people/ the number of students who chose which one	**1**
More difficult to work out how many students chose each logo	**1**
Harder to read frequencies	**1**
You can't see exactly how many people voted	**1**
You can clearly see the numbers on the bar chart	**1**
Can't see exact values	**1**
More steps to get the frequency	**1(BOD)**
Bar chart shows the actual numbers(figures)	**1(BOD)**
Hard to read exact values	**1(BOD)**
It doesn't give any numbers	**1(BOD)**
The results aren't as clear, no numbers	**1(BOD)**
very difficult to add more data to it	**1(BOD)**
Does not show how many it is out of	**1(BOD)**
Harder to find the total amount	**1(BOD)**
Bar chart gives you more information	**0**
Not as in depth as pie chart / specific	**0**
Don't know what each section is and what it's of	**0**
Have to use/ have a protractor	**0**
People may not be able to read pie charts	**0**
Harder to compare than bar chart	**0**
Can be difficult to read	**0**

Non Calculator methods for percentages.

Labels only

This is when labels such as 10% = are used.

If only labels are used the final answer scores full marks if it is correct.
Condone a numerical slip if the answer is correct.
If there is an error in the values and so the **final answer is incorrect** this cannot score method marks

e.g. Find 65% of 60

Method scoring M1A1

10% = 6
5% = 3

50% = 30
65% = 39 ✓ M1A1

10% = 6
5% = 4 ✖

condone this slip as answer correct

50% = 30
65% = 39 ✓ M1A1

Method scoring M0A0

10% = 6
5% = 4 ✖ M0

Do not condone this slip as answer incorrect

50% = 30
65% = 40 ✖

Build up method

This is where the candidate finds the percentages to build up to the required value but shows the operations used.

e.g. Find 65% of 60
10% = 60 ÷ 10 = x
5% = $x \div 2 = y$
50% = $x \times 5 = z$
65% = $x + z + y$
Because the operations have been shown and they are correct, if there is an error in one of x, y or z, method marks can still be earned

Question 22

Figures below show minimal values required, units are not required, accept some figures which may be rounded up. The figures given must be accurate enough to differentiate between the three sizes.

	Cost of 1 kg	Cost of 1g	Amount for £1	Amount for 1p	Amount for £7.70	Amount for £32.4	Amount for £53.9
700g	£11	£0.011	90[.9…] to 91 g	0.90[9] to 0.91 g	700 g	2945… g	4.9 kg
3 kg	£10.8[0]	£0.0108	92.5 to 92.6 g	0.925 to 0.926 g	712… g	3000 g	4.99… kg
5 kg	£10.7[8]	£0.0107[8]	92.7… g	0.927…g	714… g	3005… g	5 kg

	Cost of 700 g	Cost of 3 kg	Cost of 5 kg	Cost of 15 kg			
700g	£7.7[0]	£33	£55	£165			
3 kg	£7.56	£32.4[0]	£54	£162			
5 kg	£7.54[6] or £7.55	£32.3[4]	£53[.90]	£161[.70]			

Alternative method 2
Allow comparison in pairs e.g.
Compare 3 kg and 5 kg by working out the cost of 15 kg
3 kg is £162 and 5 kg is £161.70 so 5 kg is cheaper

Now compare 700 g and 5 kg by working out the cost of 7 kg
700 g is £77 and 5 kg is £75.46

Need to get in touch?

If you ever have any questions about OCR qualifications or services (including administration, logistics and teaching) please feel free to get in touch with our customer support centre.

Call us on

01223 553998

Alternatively, you can email us on

support@ocr.org.uk

For more information visit

ocr.org.uk/qualifications/resource-finder

ocr.org.uk

Twitter/ocrexams

/ocrexams

/company/ocr

/ocrexams

CAMBRIDGE
UNIVERSITY PRESS & ASSESSMENT

OCR is part of Cambridge University Press & Assessment, a department of the University of Cambridge.

OCR operates academic and vocational qualifications regulated by Ofqual, Qualifications Wales and CCEA as listed in their qualifications registers including A Levels, GCSEs, Cambridge Technicals and Cambridge Nationals.

OCR provides resources to help you deliver our qualifications. These resources do not represent any particular teaching method we expect you to use. We update our resources regularly and aim to make sure content is accurate but please check the OCR website so that you have the most up-to-date version. OCR cannot be held responsible for any errors or omissions in these resources.

Though we make every effort to check our resources, there may be contradictions between published support and the specification, so it is important that you always use information in the latest specification. We indicate any specification changes within the document itself, change the version number and provide a summary of the changes. If you do notice a discrepancy between the specification and a resource, please contact us.

Whether you already offer OCR qualifications, are new to OCR or are thinking about switching, you can request more information using our Expression of Interest form.

Please get in touch if you want to discuss the accessibility of resources we offer to support you in delivering our qualifications.